

ABSTRACT

A process of production for producing a high strength galvanized steel sheet by a hot-dip galvanized steel sheet production equipment using an all radiant tube type annealing furnace and a production equipment for the same are provided, comprising continuously hot-dip galvanizing a high strength steel sheet having a content of Si of 0.4 to 2.0 wt% during which making the atmosphere of the reducing zone an atmosphere containing  $H_2$  to 1 to 60 wt% and comprised of the balance of  $N_2$ ,  $H_2O$ ,  $O_2$ ,  $CO_2$ ,  $CO$ , and unavoidable impurities, controlling the  $\log(PCO_2/PH_2)$  of the carbon dioxide partial pressure and hydrogen partial pressure in the atmosphere to  $\log(PCO_2/PH_2) \leq -0.5$  and the  $\log(PCO_2/PH_2)$  of the water partial pressure and hydrogen partial pressure to  $\log(PH_2O/PH_2) \leq -0.5$ , and controlling the  $\log(P_T/PH_2)$  of the total partial pressure  $P_T$  of the carbon dioxide partial pressure  $PCO_2$  and water partial pressure  $PH_2O$  and the hydrogen partial pressure to  $-3 \leq \log(P_T/PH_2) \leq -0.5$ .